



## How the biodiversity sciences may aid biological tools and ecological engineering to assess the impact of climatic changes

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355-366

### Abstract:

This paper addresses how climate changes interact with other global changes caused by humans (habitat fragmentation, changes in land use, bioinvasions) to affect biodiversity. Changes in biodiversity at all levels (genetic, population and community) affect the functioning of ecosystems, in particular host-pathogen interactions, with major consequences in health ecology (emergence and re-emergence; the evolution of virulence and resistance). In this paper, the authors demonstrate that the biodiversity sciences, epidemiological theory and evolutionary ecology are indispensable in assessing the impact of climate changes, and also for modelling the evolution of host-pathogen interactions in a changing environment. The next step is to apply health ecology to the science of ecological engineering.

**Source:** [http://web.oie.int/boutique/index.php?page=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)ficprod&id\\_prec=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)115&id\\_produit=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)691&lang=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)en&fichrech=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)1&PHPSESSID=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)6bb334f9e08994fe55ba3a6cd34c935b](http://web.oie.int/boutique/index.php?page=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)ficprod&id_prec=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)115&id_produit=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)691&lang=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)en&fichrech=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1&PHPSESSID=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)6bb334f9e08994fe55ba3a6cd34c935b)

### Resource Description

#### Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

#### Communication Audience:

audience to whom the resource is directed

Researcher

#### Exposure :

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weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Precipitation, Temperature

**Extreme Weather Event:** Drought, Hurricanes/Cyclones

**Food/Water Quality:** Other Water Quality Issue

**Water Quality (other):** Water temperature

**Temperature:** Fluctuations

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:**

resource focuses on specific location

Global or Unspecified

**Health Impact:**

specification of health effect or disease related to climate change exposure

Infectious Disease

**Infectious Disease:** Vectorborne Disease, Zoonotic Disease

**Vectorborne Disease:** Mosquito-borne Disease, Tick-borne Disease

**Mosquito-borne Disease:** West Nile Virus

**Tick-borne Disease:** Lyme Disease

**Zoonotic Disease:** General Zoonotic Disease

**Model/Methodology:**

type of model used or methodology development is a focus of resource

Methodology

**Resource Type:**

format or standard characteristic of resource

Research Article, Review

**Resilience:**

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

**Timescale:**

time period studied

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Time Scale Unspecified